

Faktor yang Berhubungan dengan Luaran Terapi Meropenem pada Anak dengan Infeksi Bakteri Gram Negatif di RSUP dr. Kariadi

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Latar Belakang: Meropenem adalah antibiotik karbapenem andalan untuk infeksi Gram negatif berat pada anak dengan tingkat kegagalan terapi 9-30% terutama pada kasus infeksi berat dan sepsis. Analisis faktor yang berhubungan dengan luaran terapi diperlukan untuk meningkatkan keberhasilan pengobatan.

Tujuan: Meneliti faktor yang berhubungan terhadap luaran terapi meropenem pada anak dengan infeksi bakteri Gram negatif di RSUP dr. Kariadi. Penelitian ini membuktikan hubungan dosis obat, cara pemberian, disfungsi organ, lokasi infeksi, efikasi rasio, dan kategori resistensi terhadap luaran terapi.

Metode: Penelitian *cross-sectional* dilakukan pada pasien anak (usia 1–18 tahun) di RSUP dr. Kariadi Semarang. Subjek memiliki kultur bakteri Gram negatif sensitif meropenem dan menerima terapi meropenem definitif minimal 5 hari. Data dikumpulkan secara retrospektif dari rekam medis sejak Juni 2024-Agustus 2025. Analisis statistik menggunakan *chi-square* bivariat dan regresi logistik multivariat.

Hasil: Total 60 pasien menjadi subjek penelitian, 53,3% mencapai luaran terapi berhasil dan 46,7% mengalami kegagalan. Analisis multivariat menunjukkan tiga variabel berhubungan signifikan dengan keberhasilan terapi: Dosis meropenem tinggi (40 mg/kgBB) meningkatkan keberhasilan terapi sekitar 11,6 kali ($aOR = 11,559; p=0,002$) dibandingkan dosis reguler. Cara pemberian infus diperpanjang meningkatkan keberhasilan terapi sekitar 10 kali lipat ($aOR = 10,032; p=0,010$) dibandingkan pemberian bolus. Tidak adanya disfungsi organ meningkatkan keberhasilan terapi sebanyak 10 kali lipat ($aOR = 10,163; p = 0,027$).

Kesimpulan: Dosis obat lebih tinggi, cara pemberian infus diperpanjang, dan tidak adanya disfungsi organ merupakan faktor yang secara signifikan meningkatkan keberhasilan terapi meropenem pada anak dengan infeksi Gram negatif di RSUP dr. Kariadi.

Kata Kunci: Meropenem, Dosis tinggi, Infus diperpanjang, Disfungsi organ, Luaran terapi.

Factors Associated with Meropenem Therapy Outcome in Children with Gram-Negative Bacterial Infection at Dr. Kariadi General Hospital

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Background: Meropenem is a primary carbapenem antibiotic for severe Gram-negative infections in children, yet it has a reported therapy failure rate of 9–30%, especially in cases of severe infection and sepsis. Analysis of factors associated with meropenem therapy outcomes is necessary to improve treatment success.

Objective: This study aimed to investigate the factors associated with meropenem therapy outcomes in children with Gram-negative bacterial infections at Dr. Kariadi Central General Hospital. The study proves the association between high drug dosage, extended administration method, organ dysfunction, infection site, efficacy ratio, and resistance category on therapy outcomes.

Methods: A cross-sectional study was conducted on pediatric patients (aged 1–18 years) at Dr. Kariadi Central General Hospital Semarang. Subjects had a Gram-negative bacterial culture sensitive to meropenem and received definitive meropenem therapy for a minimum of 5 days. Data were collected retrospectively from medical records starting from June 2024 to August 2025. Statistical analysis used bivariate chi-square and multivariate logistic regression.

Results: A total of 60 patients were included as subjects; 53.3% achieved successful therapy outcomes, and 46.7% experienced failure. Multivariate analysis showed three variables were significantly associated with therapy success: High meropenem dosage (40 mg/kgBW) increased the odds of therapy success by approximately 11.6 times (aOR = 11.559; $p=0.002$) compared to the regular dose. Extended infusion administration increased the odds of therapy success by approximately 10 times (aOR = 10.032; $p=0.010$) compared to bolus administration. Absence of organ dysfunction increased the odds of therapy success by 10-fold (aOR = 10.163; $p = 0.027$).

Conclusion: A higher drug dosage, extended infusion administration, and the absence of organ dysfunction are factors that significantly increase the success of meropenem therapy in children with Gram-negative infections at Dr. Kariadi Central General Hospital.

Keywords: Meropenem, High dosage, Extended infusion, Organ dysfunction, Therapy outcome.